

IN THE CLAIMS

The following is a complete listing of the claims, and replaces all earlier versions and listings.

1. (currently amended) A flared end structure of a metal tube to be pressed against a seat formed in a member by tightening a coupling nut to the member, said flared end structure having a joining end part to be pressed against the seat of the member, and a curved part continuous with the joining end part;

wherein the curved part has a curved outer surface with respect to the axis of the tube and a concave inner surface having a bottom edge, and

the curved outer surface has a radius $[[R]]$ of curvature smaller than a wall thickness $[[t]]$ of the metal tube so as to increase a rigidity of the flared end structure.

2. (currently amended) A flared end structure of a metal tube to be pressed against a seat formed in a member by tightening a coupling nut to the member, having a joining end part to be pressed against the seat of the member, and a curved part continuous with the joining end part;

wherein the curved part has a curved outer surface with respect to the axis of the tube and a concave inner surface having a bottom edge, and

the curved outer surface has a center of curvature at a position on the radially outer side of the bottom edge of the concave inner surface with respect to the axis of the tube so as to increase a rigidity of the flared end structure.

3. (currently amended) The flared end structure of a metal tube according to claim 1, wherein the curved outer surface merges into a flat surface, on which [[the]] a coupling nut [[exert]] exerts pressure, of a neck part, and the bottom edge of the concave inner surface is in a radial range corresponding to the flat surface of the neck part.

4. (original) The flared end structure of a metal tube according to claim 3, wherein the flat surface of the neck part is perpendicular to the axis of the tube.

5. (currently amended) The flared end structure of a metal tube according to claim 3, wherein the flat surface of the neck part is connected to the outer surface of the metal tube by a curved connecting surface having a center of curvature at a position radially outside the metal tube, and the flat surface extends between the curved outer surface of the curved part and the curved connecting surface.

6. (currently amended) The flared end structure of a metal tube according to claim 1, wherein ~~the radius R of curvature and the wall thickness t of the metal tube meet an inequality:~~

$$0.8t \leq R \leq t,$$

where R is the radius of curvature and t is the thickness of the metal tube.

7. (currently amended) A flared end structure of a metal tube to be pressed against a seat formed in a member by tightening a coupling nut to the member, having a joining end part to be pressed against the seat of the member, and a curved part continuous with the

joining end part;

wherein the curved part has an curved outer surface with respect to the axis of the tube and a concave inner surface having a bottom edge, and

the curved outer surface merges into a flat surface, on which the coupling nut exerts pressure, of a neck part,

the flat surface of the neck part is connected to an outer surface of the metal tube by a curved connecting surface having a center of curvature at a position radially outside the metal tube, and

a distance including a tolerance between the flat surface of the neck part and the end of the joining end part of the metal tube meets an inequality:

$$L_1 \leq L \leq L_2$$

where

$$L_1 = \{(D_1 - D_3)/2 + r\}/\tan(\alpha/2) + t/\sin(\alpha/2) + t$$

$$L_2 = \{(D_2 - D_3)/2 - t\}/\tan(\alpha/2) + t/\sin(\alpha/2) + t$$

D₁: Outside diameter of the metal tube

D₂: Outside diameter of the flared end structure

D₃: Inside diameter of the end of the flared end structure

r: Radius of curvature of the curved connecting surface

α : Cone angle of a cone containing the joining end part

t: Wall thickness of the tube.

8. (original) The flared end structure of a metal tube according to claim 7, wherein the flat surface of the neck part extends between the curved outer surface and the curved

connecting surface.

9. (previously presented) The flared end structure of a metal tube according to claim 1, wherein the tube has an outside diameter not smaller than 6 mm.